

IN THE CLAIMS:

Claims 19-23 and 33-38 have been amended herein. Please cancel claims 25-32 and 40-47 without prejudice or disclaimer. All of the pending claims are presented below. This listing of claims will replace all prior versions and listings of claims in the application. Please enter these claims as amended.

Listing of Claims:

Claims 1-17 (Canceled)

18. (Previously presented) A method of forming an electrical structure on a substrate, the method comprising:

performing a plasma doping (PLAD) operation to form a first doped region in a substrate; and

performing a second doping operation, the second doping operation comprising depositing dopants in the first doped region and in a second doped region that is contiguous with and extends below the first doped region, wherein the first doped region has a higher dopant concentration than the second doped region, the second doped region having a lower periphery that is substantially planar and substantially parallel to the substrate.

19. (Currently amended) A method as defined in claim 18, wherein performing a PLAD operation to form a first doped region in a substrate comprises performing the PLAD operation to form the first doped region ~~has~~ having a dopant concentration that terminates relatively abruptly at an uneven lower periphery.

20. (Currently amended) A method as defined in claim 18, wherein:

performing a PLAD operation to form a first doped region in a substrate comprises forming the first doped region ~~has~~ having a lower periphery at a depth of less than about 1000 Å; and

performing a second doping operation comprises forming the second doped region ~~has having~~ a lower periphery at a depth that is less than about 1750 Å and at least about 250 Å greater than the depth of the lower periphery of the first doped region.

21. (Currently amended) A method as defined in claim 18, further comprising annealing the substrate after at least one of the second doping operation and/or after and the PLAD operation to cause a more uniform distribution of dopants ~~than prior to the annealing~~.

22. (Currently amended) A method as defined in claim 21, wherein ~~the annealing the~~ substrate comprises is performed as a rapid thermal-anneal annealing of the substrate.

23. (Currently amended) A method as defined in claim 18, wherein:

performing a PLAD operation to form a first doped region in a substrate comprises conducting the PLAD operation is conducted at an energy in a range of from about 5 KeV to about 15 KeV such that the first doped region has a dopant concentration in a range of from about 1×10^{19} dopant atoms/cm³ to about 5×10^{21} dopant atoms/cm³; and

performing a second doping operation comprises performing the second doping operation ~~is performed~~ at an energy in a range of from about 10 KeV to about 25 KeV such that the second doped region has a dopant concentration in a range of from about 1×10^{16} dopant atoms/cm³ to about 1×10^{19} dopant atoms/cm³, the second doping operation being conducted in a medium power implanter operating in a range of from about 0 KeV to about 200 KeV.

24. (Previously presented) A method as defined in claim 18, wherein the first doped region and the second doped region form a portion of an electrical device that is selected from the group consisting of a diode, a resistor, and a transistor.

Claims 25-32 (Canceled)

33. (Currently amended) A method of forming an electrical structure on a substrate,

the method comprising:

providing a gate region over a substrate, the gate region having a bottom surface;
performing a plasma doping (PLAD) operation to form a first doped region in a the substrate, wherein the first doped region does not underlap the bottom surface of the gate region; and

performing a second doping operation, the second doping operation comprising depositing dopants in the first doped region and in a second doped region that is contiguous with and extends below the first doped region, wherein the first doped region has a higher dopant concentration than the second doped region, the second doped region having at least a portion thereof that underlaps the bottom surface of the gate region.

34. (Currently amended) A method as defined in claim 33, wherein performing a PLAD operation to form a first doped region in the substrate comprises forming the first doped region ~~has having~~ a dopant concentration that terminates relatively abruptly at an uneven lower periphery.

35. (Currently amended) A method as defined in claim 33, wherein:
performing a PLAD operation to form a first doped region in the substrate comprises forming the first doped region ~~has having~~ a lower periphery at a depth of less than about 1000 Å; and

performing a second doping operation comprises forming the second doped region ~~has having~~ a lower periphery at a depth that is less than about 1750 Å and at least about 250 Å greater than the depth of the lower periphery of the first doped region.

36. (Currently amended) A method as defined in claim 33, further comprising annealing the substrate after at least one of the second doping operation and/or after ~~and~~ the PLAD operation to cause a more uniform distribution of dopant ~~than prior to the annealing~~.

37. (Currently amended) A method as defined in claim 36, wherein ~~the annealing the substrate is performed~~ comprises performing the annealing as a rapid thermal anneal.

38. (Currently amended) A method as defined in claim 33, wherein:

performing a PLAD operation to form a first doped region in the substrate comprises conducting the PLAD operation ~~is conducted~~ at an energy in a range of from about 5 KeV to about 15 KeV such that the first doped region has a dopant concentration in a range of from about 1×10^{19} dopant atoms/cm³ to about 5×10^{21} dopant atoms/cm³; and performing a second doping operation comprises performing the second doping operation ~~is performed~~ at an energy in a range of from about 10 KeV to about 25 KeV such that the second doped region has a dopant concentration in a range of from about 1×10^{16} dopant atoms/cm³ to about 1×10^{19} dopant atoms/cm³, the second doping operation being conducted in a medium power implanter operating in a range from about 0 KeV to about 200 KeV.

39. (Previously presented) A method as defined in claim 33, wherein the first doped region and the second doped region form a portion of an electrical device that is selected from the group consisting of a diode, a resistor, and a transistor.

Claims 40-47 (Canceled)